

$$\begin{aligned} \Delta[k_-] := & (1-t) (\alpha^2 \beta^2 + 4 \alpha \beta \delta \mu + 2 \delta^2 \mu^2) / 2 + \\ & 2 \mu^2 (\alpha \beta + \delta \mu) c_k - \beta (2 \mu - 1) (\alpha \beta + 2 \delta \mu) u_k + \\ & 2 \beta \delta \mu^2 c_k u_k - \beta^2 \delta (3 \mu - 1) u_k^2 / 2 + \alpha (\alpha \beta + 2 \delta \mu) w_k + \\ & 2 \alpha \delta \mu^2 c_k w_k - 2 (t-1) \delta^2 (\alpha \beta + \delta \mu) u_k w_k + \\ & 2 \delta^2 \mu^2 c_k u_k w_k - \beta \delta^2 (2 \mu - 1) u_k^2 w_k + \alpha^2 \delta (1 + \mu) w_k^2 / 2 + \\ & \alpha \delta^2 u_k w_k^2 - (t-1) \delta^4 u_k^2 w_k^2 / 2; \end{aligned}$$

$$\begin{aligned} R_{i_-,j_-}^+ := & \mathbb{E} [1, b_i c_j, u_i w_j, \\ & -c_i (t-1)^2 / 2 - c_i^2 (t-1)^2 / 2 + c_i c_j (t^2 - t - 2) / 2 - \\ & c_j u_i w_i / 2 + c_i (1-t) u_i w_i - u_i^2 w_i^2 / 2 + u_i w_j + \\ & c_j t u_i w_j / 2 + c_i (t-2) t u_i w_j + c_i (1+t) u_j w_j / 2 + \\ & (t-1) u_i^2 w_i w_j - (t-2) t u_i^2 w_j^2 / 2]; \end{aligned}$$

$$\begin{aligned} R_{i_-,j_-}^- := & \mathbb{E} [1, -b_i c_j, -t^{-1} u_i w_j, \\ & c_i (t-1)^2 / 2 + c_i^2 (t-1)^2 / 2 + c_i c_j (2+t-t^2) / 2 + \\ & c_j u_i w_i / 2 + c_i (t-1) u_i w_i + u_i^2 w_i^2 / 2 + \\ & (1-t^{-1}) u_i w_j / 2 + c_i (2t-5+3t^{-1}) u_i w_j / 2 + \\ & c_j (t^{-1} + 1 - t) u_i w_j / 2 - c_i (t+1) u_j w_j / 2 + \\ & (2-3t^{-1}) u_i^2 w_i w_j / 2 + (1+2t^{-2} - 3t^{-1}) u_i^2 w_j^2 / 2 - \\ & t^{-1} (1+t) u_i u_j w_j^2 / 2]; \end{aligned}$$

$$ur_{i_-} := \mathbb{E} [t^{-1/4}, \theta, \theta, c_i t / 4 + u_i w_i / 8];$$

$$nr_{i_-} := \mathbb{E} [t^{1/4}, \theta, \theta, -c_i t^3 / 4 - t^2 u_i w_i / 8];$$

$$ul_{i_-} := \mathbb{E} [t^{1/4}, \theta, \theta, c_i t (4+t) / 4 - t^2 u_i w_i / 8];$$

$$nl_{i_-} := \mathbb{E} [t^{-1/4}, \theta, \theta, -c_i (1+4t^{-1}) / 4 + u_i w_i / 8];$$